

CONSTRUCTION PLANS STANDARDS:
GENERAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
COVER SHEET		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Uses most recent City Template	
<input type="checkbox"/> <input type="checkbox"/>	Sealed, dated, and signed by Engineer (all sheets)	For interim review, provide note indicating that plans are "Not for Construction and for review only. Provide the release date, name and license number for engineer of record, and firm registration number
<input type="checkbox"/> <input type="checkbox"/>	Submittal version and date	Indicate percentage version for CIP projects
<input type="checkbox"/> <input type="checkbox"/>	Table of Contents	Include sheet numbers and descriptions
GENERAL		
<input type="checkbox"/> <input type="checkbox"/>	Plan size: 22" x 34", half size: 11" x 17"	Scale on plan sets must be accurate to plan size
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Title Block – uses most recent City Standard	Include sheet number and description
<input type="checkbox"/> <input type="checkbox"/>	Scale (on all sheets) - 1" = 5' vertical - 1" = 20' horizontal	Indicate scale of full-size plans - 1" = 10' vertical (for half-size) - 1" = 40' horizontal (for half-size)
<input type="checkbox"/> <input type="checkbox"/>	North arrow (on all applicable sheets)	
<input type="checkbox"/> <input type="checkbox"/>	Include scale bar (on all applicable sheets)	
<input type="checkbox"/> <input type="checkbox"/>	Legend and symbols (on all applicable sheets)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show property/owner information for all visible properties adjacent to project	- Include owner name, lot/block number, and address - All plan sheets
	Show existing and proposed property lines, easement lines, ROW lines, ROW dimensions, and all street names	- All plan sheets
QUANTITY SHEETS AND GENERAL NOTES		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provide quantity table	Do not number items
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Accentuate note stating "Quantities are for estimating purposes only."	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Include column indicating sheet number for that quantity	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	General notes do not conflict with Special Provisions, Standard Details, or other specifications	Remove notes that are redundant
PROJECT CONTROL LAYOUT		
<input type="checkbox"/> <input type="checkbox"/>	Uses City monuments for horizontal and vertical control	
<input type="checkbox"/> <input type="checkbox"/>	Minimum 2 per project	
<input type="checkbox"/> <input type="checkbox"/>	All city monuments and supplementary control points are clearly shown and described on plans	<ul style="list-style-type: none"> - Include City identification numbers - Include description of benchmark - Provide Coordinates and elevation
<input type="checkbox"/> <input type="checkbox"/>	For all horizontal and vertical control monuments, show published coordinates expressed in units of U.S. Survey Feet and as a part of the Texas Coordinate System of 1983	
REMOVAL PLAN		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Clearly identify items to be removed	Provide quantities of removal items
	Improvements to remain in gray	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show 6" or larger trees to be removed or to be protected	Label species and diameter
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show structures that will be temporarily relocated	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show items that affect private or adjacent property	
DETAIL SHEETS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Uses latest City standards for all applicable details	See City website for most recent versions for any submittal
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provide any supplementary details for non-standard items	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Detail sheets are sealed by Engineer	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Appropriately sized to read notes and annotations when printed half-size	
WATER PLANS – OVERALL LAYOUT SHEET		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Scale (Max. 1" = 300')	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Label proposed line name(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show sheet numbers for proposed line(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show stationing	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show benchmarks and control points	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing water information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes note: "There shall be a minimum cover of 42 inches over the water main as measured from the top of the pipe to the existing ground or the proposed finished grade, whichever is lowest."	
WATER PLANS – PLAN VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location/alignment of proposed water line(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing water lines	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed sewer lines	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed storm drains	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show pavement section and label type of pavement (concrete or asphalt) for repairs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing curb and gutter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show public service provider conflicts (i.e. gas, electric, etc.)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of all trees and label size of trees to be removed or protected	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out fire hydrants, valves, bends, etc.	See AWU call out standards
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out connections, beginning and ending	See AWU call out standards
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show all proposed service lines and meter boxes	Call out service and meter sizes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Station all services	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Label proposed pipe size and material	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of bores (when required), call out size of casing and reference detail number	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show alignment stationing (50' ticks and begin stationing at 0+00)	
WATER PLANS – PROFILE VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Profile provided for all mains minimum 12 inches	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Profile provided for all mains crossing beneath a storm drain pipe, box culvert, drainage channel, or public service provider	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Profile provided for all mains installed within a casing pipe	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Label top of pipe elevation every 50' on profile	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show OD of water line	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of bores (when required), show OD of casing	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of utility conflicts (water, sewer, storm drain, public service providers)	Dimension crossings if less than 3 feet of separation
SEWER PLANS – OVERALL LAYOUT SHEET		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Scale (Max. 1" = 300')	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Label proposed line name(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show sheet numbers for proposed line(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show stationing	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show benchmarks and control points	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing sewer information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Include note: "Connections to an existing manhole shall be cored and the invert shall be re-worked"	On all applicable sewer layout and plan sheets
SEWER PLANS – PLAN VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location/alignment of proposed sewer line(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show alignment stationing (50' ticks and begin stationing at 0+00)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location and station of existing and proposed manholes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location and station of sewer services	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing sewer lines	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed water lines	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed storm drains	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing curb and gutter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show SS flow direction arrows for proposed and existing	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out proposed pipe size and material	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show pavement section and label type of pavement (concrete or asphalt) for repairs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show utility conflicts (water, sewer, storm drain, public service providers, etc.)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of trees and mark for removal	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out connections, beginning and ending (see AWU call outs standard)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show bores when required, call out size of casing and reference detail number	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out curves and information (see AWU call outs standard)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show flow line elevation of service at property line when lot is lower than the street or when storm drain crosses the service	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show caution call outs for gas, OHE, and underground electric	
SEWER PLANS – PROFILE VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Profile provided for all sewer mains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Start sewer profile stationing at the downstream end and read left to right	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show elevation of flowline every 50 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing grade	In gray
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show proposed grade	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show OD of sewer line	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of bores (when required), show OD of casing	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out rim elevations	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out slope, length, size, and material of pipe	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of utility conflicts (water, sewer, storm drain, public service providers)	Dimension crossings if less than 3 feet of separation

Y N N/A	ITEM	ADDITIONAL INFORMATION
DRIVEWAY PLAN		
	Shows all existing and future right of way and easements	
	Shows all existing utilities and features including, but not limited to, curbs, storm drains, inlets, flumes, utilities, trees, sidewalks, meters, fire hydrants, etc.	
	Proposed driveway grade profile (15 feet beyond the right-of-way)	
	Existing driveways on both sides of the street and median openings (within 150 feet)	
TRAFFIC SIGNAL PLAN		Include for items within 300 feet of intersection
	Show existing roadway, sidewalks, easements, and right-of-way	
	Dimension locations of poles, pedestals, push-button signposts, and controller from the back of curb	
	Show all existing signs and pavement markings	
	Show existing signal features including signal shafts/poles, mast arms, pedestals, pushbutton signposts, signal symbols, pull boxes, conduit, controller, and other physical features	
	Show existing storm inlets and storm drains	
	Show all underground utilities	
	Show all overhead utilities with heights of lines at points of potential conflict	
	Show all proposed signs	
	Locate necessary unique features, such as flashing beacons, streetlights, or any aesthetic components	
	Locate proposed power source and new controller location	
	Provide summary table with signal pole/pedestal with all foundation information	

Y N N/A	ITEM	ADDITIONAL INFORMATION
	Provide summary table with signal head position on the mast arm	
	Provide power service identification table	
	Provide detector connection chart for all Video/Radar/Preemption Detection	
	Provide a wire termination chart	
	Provide summary table of APS voice messages for each pedestrian phase	
	Provide a Legend defining all elements including but not limited to signal displays, signs, and all equipment	
	Provide summary table of conduit runs	
STREETLIGHT PLAN		
	Use standard symbols and abbreviations	
	Show all service poles or transformer pads utilized for streetlight energy source	
	Provide electric delivery provider's electrical design	
	Show all utility easements	
	Show all existing and proposed utilities	
	Show all existing and proposed storm drains and inlets	
GRADING PLAN		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing (pre-project) and proposed contours	Make existing contours gray when different from proposed
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Include flow arrows that correspond to contours and elevations	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provides spot elevations	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential grading plan calls out grading type (Type A, B, or C) for each lot	*See HUD Lot and Block Grading Figures
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential grading plan calls out grading type for each lot (Type 1 or 2 preferred)	*See HUD Lot and Block Grading Figures

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flood Protection Elevation (FPE) called out for all lots in floodplain	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	FPE called out for all lots in flood-prone areas	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	FPE called out for all other properties at risk of flooding including, but not limited to, lots adjacent to open drainage features, around T-intersections, and lots at low points	
DRAINAGE AREA MAP		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Scaled to show all off-side drainage areas flowing through site	May require multiple sheets to show overall site drainage areas at appropriate sizes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes separate maps showing existing (pre-project) drainage area and fully developed (post-project) drainage area	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage areas delineated to show runoff to each drainage feature (inlet, flume, channel, etc.)	
HYDROLOGY HYDRAULICS CALCULATIONS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Runoff calculations provided for existing and fully developed conditions	Provide calculations for each drainage area, with a comment identifying drainage feature where each drainage area flows
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Capacity calculations for all inlets provided	Use clogging factor when required Use weir or orifice flow based on head depth
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pipe flow calculations for each pipe segment provided	Consider full or partial flow when sizing
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provide calculation summary for detention facilities	Include stage-storage-discharge values and flow calculations for discharge structures
DRAINAGE PLANS – PLAN VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location/alignment/size of proposed storm drains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show alignment stationing (50' ticks and begin stationing at 0+00)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out equivalent stationing for laterals on main	Begin lateral stationing 0+00 at centerline of main
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location and stationing of all drainage structures	Provide coordinates

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out top of structure elevation for all drainage structures	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out flow line elevation for all drainage structures	Include flow line IN/OUT for all connecting pipes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing storm drains to be abandoned	Include annotations for plugs and for method of abandonment
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed water lines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of existing and proposed sewer lines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing curb and gutter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show flow direction arrows for storm mains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provide pavement section and label type of pavement (concrete or asphalt) for repairs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show utility conflicts (water, sewer, storm drain, public service providers, etc.)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of trees marked for removal and protection	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show caution call outs for gas, OHE, and underground electric	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show bores when required	
DRAINAGE PLANS – PROFILE VIEW		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provide profile for all storm drains, culverts, and channels	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show elevation of flowline every 50 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing grade	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show proposed slope	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show OD of storm drain	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of bores (when required)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call flowline and top of structure elevations for each structure	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out pipe size, slope, length, and material of each pipe segment	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Call out pipe flows for each segment	Pipe segments are separated by structures, changes in pipe size, changes in slope, or lateral connections. Include Q_{capacity} , $Q_{\text{design storm}}$, V_{max} , $V_{\text{design storm}}$, S_f
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show location of utility conflicts (water, sewer, storm drain, public service providers)	Dimension crossings if less than 3 feet of separation

RIGHT-OF-WAY AND EASEMENT PLANS
GENERAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
SURVEY DESIGN MANUAL		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All ROW and easement survey performed in accordance with City of Arlington Survey Design Manual	See City website for latest version of manual
SUMMARY SHEET		
For projects requiring additional ROW or easements, include a table with columns showing all the following		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Parcel number(s)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Type of parcel(s) - ROW or specific easement type	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Legal description	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Address	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property owner	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gross area of property (SF)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Easement area (SF)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Net area of property after ROW acquisition	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Volume and page of current filing	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Column for recording information	
ROW/STRIP MAP SHEETS		
Provide the following information for every property shown on strip map		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum scale: 1" = 30' min	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property corners tied to centerline of roadway	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of all existing and proposed property pins	Include station and offset from CL
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property legal description	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property address	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property recording info	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Parcel number	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Type of parcel - ROW or easement)	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Area being acquired	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Area remaining	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Property owner	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing easements with recording info	Indicate by plat or by separate instrument
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bearing/distances of all property/easement lines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Curve data for all non-linear property/easement lines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Control Monuments	
EASEMENT/ROW DOCUMENT EXHIBIT		All items should be shown on description and sketch of Exhibit
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Exhibit is sealed by Land Surveyor	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Title of Exhibit	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	ROW or type of easement is clearly labeled	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Acreage and square footage of ROW/easement is provided	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Legal description of property	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Parcel filing information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Owner information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deed filing information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Metes and bounds description provides closure	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bearing descriptions provide the coordinate system	Verify compliance with Survey Design Manual
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Exhibit drawing matches describing, metes and bounds	

CHAPTER 3 – WATER UTILITIES:
TECHNICAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
WATER MAINS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sizing conforms with Water Distribution System Master Plan	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	8” minimum diameter	Development projects require flow demand documentation. See Chapter 3.1.2 including Table 3-1 Exception allows 6” for dead-end cul-de-sac
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Located 2 feet behind curbs or storm drain inlets	Not allowed below inlets
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Changes in horizontal alignment use fittings OR	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deflection of joints for water mains meet radius requirements	Call out design radius, beginning and end of curvature. Include detail of typical deflection
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All water mains are looped	See section 3.1.3 for exceptions allowed on cul-de-sacs
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 42 inches of cover	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing on mains constructed by methods other than open cut	Casing shall extend a minimum of 5 feet beyond drainage structures or 10 feet beyond a drainage channel
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing on mains installed below a 33” or larger diameter storm pipe, box culvert, or channel	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing on mains crossing below 30” or smaller storm drain with less than 2 foot of clearance	Alternatively, DIP can be installed on center with storm drain crossing
WATER SERVICES		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Connects to main on the side of the lot where the property is addressed	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential services located at center of lot	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed perpendicular to main	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No services connected to transmission line, private fire service, or public fire hydrant lead	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Irrigation services have backflow prevention	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Non-residential domestic services have backflow prevention	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire services, whether new or retrofitting existing connections, have backflow prevention	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Meters sized per AWWA standards “M6” latest version	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Meters located in accessible protected areas outside of vehicular or pedestrian traffic.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Meter banks installed in a logical sequence which corresponds with the premise address	
WATER FITTINGS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Connections to existing main use a tapping sleeve and gate valve with no water outage	Exception when extending a dead-end water main
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate valves provided and restrained to a tee water main intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate valves located so maximum of 32 residential lots out of service during any maintenance or main repair	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate valves spaced at within maximum intervals based on main diameter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate valves aligned with common lot lines where installed between intersections	Not placed within sidewalks, curb ramps, or driveways
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gate valves installed and restrained to tee for all fire hydrant leads, fire services, and water services 4” or larger	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Combination air valves installed on mains 16” or larger where air locks in mains may occur	Sized per latest edition of AWWA M51
FIRE HYDRANTS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Located to meet all spacing and coverage requirements as required per fire code(s), Unified Development Code, and other design criteria	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed at the end of mains in cul-de-sacs and other locations where mains terminate	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed at all streets intersecting with cul-de-sacs that are minimum 200 feet in length	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Aligned with common lot lines when hydrants required between intersections	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed behind sidewalks adjacent to a curb in City ROW or in parkway if one exists between sidewalk and curb	Do not install within sidewalks
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Located in accessible and visible locations	Shall not conflict with Americans with Disabilities Act (ADA) requirements
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 3 feet and maximum 8 feet behind back of curb, with a minimum 3-foot radius clear space	Located outside curb returns and at least 5 feet from the edges of driveways
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Leads maximum 6-foot depth	Use offsets or bends to bring the fire hydrant lead up to allowable depths
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Blow offs located at low point on mains 16" or larger	
SANITARY SEWER MAINS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 8" diameter	An engineering analysis may be required to confirm existing or proposed mains are adequate to support the proposed development. The average daily flow, daily peaking factor, and infiltration/inflow rate for the existing development can be made available upon request. The Peak/Design Loading Rate for a proposed development shall be calculated based on Equation 3-1.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sized for fully developed conditions based on the latest version of the Sanitary Sewer System Master Plan latest AWU system hydraulic model.	Parameters for calculating sanitary sewer system demands for proposed development based on typical land use types are shown in Table 3-3: Design Sanitary Sewer Loading for Proposed Development.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sized to serve the development and upstream sanitary sewer drainage basin	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 3.0 fps velocity when flowing half full	Use Manning's equation with an "n" value of 0.013
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Slope is within minimum and maximum slopes shown in Table 3-2: <i>Allowable Sanitary Sewer Main Diameters & Slopes</i>	Diameter of the main shall not be increased to reduce minimum required slope
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Placed along the centerline of residential streets or center of a traffic lane of non-residential streets	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Mains 12" or larger are constructed on a straight alignment	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Horizontal curvature has minimum radius, achieved by deflection of joints.	Call out design radius, beginning and ending of curvature Include detail of the proposed typical deflection
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Mains placed low enough to accommodate future development in sanitary sewer drainage basin.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 42" cover, as measured from the top of the pipe to the existing ground or the proposed finished grade, whichever is lower	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed on a uniform grade between manholes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Consecutive mains upstream and downstream of manholes maintain similar grades	See Table 3-4 <i>Sanitary Sewer Main Grade Change Restrictions</i>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Crown elevations match on each side of manhole where smaller main joins a larger downstream main	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	New downstream mains are same size or larger than new upstream mains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing required for mains constructed by method other than open cut	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing required for mains installed below a 33" or larger diameter storm pipe, box culvert or channel	Sewer casing extends minimum 5 feet beyond drainage structures or 10 feet beyond a drainage channel
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steel casing on mains crossing below 30" or smaller storm drain with less than 2 foot of clearance	
SANITARY SEWER SERVICES		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum of 4"	Larger diameter sewer services may be required based on calculated peak effluent.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installed perpendicular to the main	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Located 10 feet offset from lot centerline toward the downstream end of sewer main.	Not under driveways
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Services at end of a cul-de-sac street connected straight from manhole to property line	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provides adequate depth to allow gravity service to for future developments	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Services on mains larger than 15 inches installed into a manhole.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 6" clearance between storm drain facilities.	
SANITARY SEWER MANHOLES		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at changes in horizontal and vertical alignment	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at beginning and termination of curve	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at connection of two or more mains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at change in main diameter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at 8" or larger service connection	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided at end of each main	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Spaced per requirements based on main size	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Spaced maximum of 300 feet for manholes on curved alignment	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sized properly based on main depth and diameter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Manholes are 60" outside drops when influent flow line is more than 2 feet above effluent flow line	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Manholes outside street ROW are accessible	Dedicate easement as necessary
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Manholes at end of cul-de-sacs limited to 3 service connections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Watertight rings and bolt-down lids provided as required	

CHAPTER 4 – TRANSPORTATION:
TECHNICAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
General		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Roadways comply with Thoroughfare Development Plan	Classification, number of lanes, alignment, ROW width
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Complies with Hike and Bike System Master Plan	
Traffic Impact Analysis		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Plans provide information required for City to make determination of necessity of Traffic Impact Analysis	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Preliminary meeting held prior to beginning a TIA	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	TIA contains all required information for City to complete review	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	TIA has been approved by City	
Roadway Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streets designed based on roadway classification speed	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Intersections provide appropriate sight distance (visibility triangles)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Roadways provide sight distance based on topography, roadway curvature, or other obstructions	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streets intersecting arterial streets and major collectors at 90° angle ± 10°	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Street grades are minimum 1%	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Street grades are less than allowable maximum for classification	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Vertical curves achieve minimum length	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Intersection approach grades are less than street classification maximum	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cul-de-sacs have minimum 39-foot back of curb radius	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Horizontal curves provide minimum centerline radius	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Reverse curves provide minimum tangent length	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Arterial/collector streets intersecting arterial/collector streets provide minimum centerline approach tangent length	
Fire Lanes		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All exterior walls of a structure are within 150 feet of a dedicated fire lane or public street	Fire hoses to extend around a building as measured 10-feet off the building
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes and public streets shall be constructed prior to any vertical construction	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All fire lanes have 14 feet of vertical clearance	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes have minimum 24-foot width	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes have minimum 30-foot inside turning radius	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes have maximum 8-percent grade	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire access bridges carry minimum of 80,000 pounds	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dead-end fire lanes longer than 150-feet have an approved turnaround	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes are constructed of asphalt or concrete, to match local road standards at a minimum.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gated fire lanes include turnaround facilities to accommodate AASHTO type “SU” design vehicle	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gated entries are equipped with a Knox System Gate Access Key Switch and a pre-emptive gate opening system as approved by the Fire Department	
Roundabout Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Roundabout feasibility considered for all intersections	If roundabout or traffic circle not utilized, reason(s) must be clearly documented

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Roundabout designed per FHWA's " <i>Roundabouts: An Informational Guide (FHWA-RD-00-067,</i> " or most current version	
Pavement Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Private streets are designed to standards for public streets	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	City Standard details are included for street classification based on TDP	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Street design sheets include all appurtenances	Including, but not limited to, sidewalks, streetlights, signs, pavement markings
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternate street designs must include geotechnical report and 50-year minimum lift design	
Median Openings		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drawings include location of opening and distance to next median opening an both directions	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drawings include all driveways, public streets, private streets, and property lines within 600 feet of proposed median opening	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Request includes a letter of concurrence from affected property owners on both sides of the street within 600 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Median openings spaced based on street classification	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Storage length for left turn lanes is minimum 150 feet with 150-foot transition	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Median openings on existing improved streets require three-party contracts to be paid by Owner	Including any necessary utility relocations
Driveway Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No curb returns within 4 feet of fire hydrant, utility pole, or above ground utility	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No curb returns within the gutter transition of an inlet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Curb returns do not extend beyond property line	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Driveway dimensions are in compliance with Table 4-9 “Driveway Design Criteria”	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential driveways provide minimum length of 20 feet from right-of-way with to nearest obstruction	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential driveways on arterial or major collector provide off-street maneuvering area	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Residential circular driveways have minimum 50-foot centerline spacing between the approaches	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Shared residential Driveways are minimum 12-foot width	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Commercial Driveways provide minimum 20 feet between ROW line of arterial/major collector and any intersecting internal driveway - Minimum 24-foot width and 48-foot depth for shared driveways	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Commercial Driveways provide minimum 100-foot continuous approach length without adjacent parking or vehicular cross flow if design volume exceeds 5,000 vehicles per day.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Commercial Driveways provide maneuvering space entirely on private property	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Shared driveways require private access easement with maintenance agreement	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Driveway does not create a Level of Service of “D” or worse	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Driveways provide adequate sight distance in accordance with AASHTO Handbook	
Auxiliary Lane Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deceleration lane provided when driveway located on an arterial, major collector, or interstate frontage road where right-turn ingress volume exceeds 40 right turns in the peak hour	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deceleration lane provided when use of driveway is determined to cause excessive delay on the roadway as determined by a TIA.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Left turn lane provided when the projected product of the left-turn ingress volume (50 minimum) and the opposing volume per lane exceeds 420 trips in any design hour.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Left turn lane provided when a driveway aligns with an existing median opening	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No driveways within the transition area of a right-turn or deceleration lane.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deceleration lane extended a minimum of 50 feet in advance of an existing or proposed driveway	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deceleration lane extended to intersection when within 180 feet of an intersection	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Deceleration lane conforms to dimensions in Figure 4-3 “Deceleration Lane”	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maximum of 3 driveways within continuous deceleration lane unless lane is an extension of a right turn lane at an intersection.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maximum length of combination deceleration-right turn lane is 1,300 feet.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Driveway spacing conforms with Table 4-9 “Driveway Design Criteria”	
Sidewalk Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All sidewalk and access ramp installations fully conform to the latest American with Disabilities Act (ADA) regulations and Texas Accessibility Standards (TAS)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All sidewalks conform with the UDC	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sidewalks are provided on both sides of the street	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sidewalks are minimum 5-feet wide when not adjacent to curb	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sidewalks are placed 1-foot from right-of-way line	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sidewalks that are closer than 2-feet from the curb are adjacent to curb and minimum 6-feet wide	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Obstructions in a sidewalk are moved from sidewalk limits	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 3-foot sidewalk width when an obstruction cannot be relocated	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All access ramps within any improved intersection meet current ADA and TAS requirements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sidewalks along TXDOT facilities meet all TXDOT standards	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All pavement markings meet TMUTCD requirements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All pavement markings are red, yellow, or white retroreflective thermoplastic	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Longitudinal and transverse pavement markings are provided for all streets classified as major collector or higher	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	High speed (40 mph or higher) rural roads provide center lines and edge line markings	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pavement markings provided in accordance with street width and volume outlined in Table 4-10	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Puppy tracks provided at offset intersections, skewed intersections, or dual turning movements	2-foot lines with 3-foot skips
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Left turn lanes on undivided roadways provide transition before left turn storage in accordance with Table 4-11	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Storage length of vehicle queue plus 100 feet	Minimum 150 feet
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All non-longitudinal pavement markings are white	Except median noses, which shall be yellow

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop bars are 15 feet from cross-street face of curb, and 4 feet in advance of any crosswalk	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop bars provided where more than 50 pedestrian movements per hour cross a stopped approach	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop bars provided at multi-way stops involving a major collector or above	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop bars provided at all signalized intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop bar provided anywhere a STOP sign cannot be placed where vehicles should come to a stop for safety purposes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Crosswalk provided at each approach of a signalized intersection	Unless pedestrians are prohibited from crossing a specific approach
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Crosswalk provided at controlled approaches at a designated school crossing or where pedestrian movements exceed 100 in any one hour	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Mid-block crossings are avoided	Except at school crossings controlled by a crossing guard or at signalized pedestrian crossings
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pavement words and symbols contain no more than three lines of information	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pavement words and arrows used in conjunction with lane use control signs, railroad crossings, continuous left turn lanes, and where needed to provide proper guidance	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pavement symbol and word font size is minimum 8 feet in height	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bike Lane and Symbol Markers are in accordance with the classification requirements in HBSMP and conform to TMUTCD	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lanes are fully striped with 6-inch red stripe with 4-inch letters "No Parking Fire Lane"	Text should be every 15 feet
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire lane markings on vertical face when curb defines a fire lane	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location and design of all signs is included in construction plans	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signs are in accordance with TMUTCD and State Highway Sign Design Manual (SHSD)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signs in special districts are installed in accordance with UDC	
Traffic Signal Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of signals based on an approved TIA or as directed by City Traffic Engineer	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal design provided for all intersections with new signals or modifications based on street plans	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal design conforms with City Traffic Signal Application Manual, City Uniform Traffic Control Manual (UTCD)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	TXDOT signals comply with TXDOT signal standards	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signals conform to ADA/TAS requirements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design includes proper signal cabinet, controller, and detection equipment	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal poles/pedestals located so that vehicle and pedestrian signals are properly oriented	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pedestrian pushbuttons meet ADA and TAS requirements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal heads meet TMUTCD requirements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal heads are in clear view of approach vehicles	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal heads are centered on the travel lane	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pull boxes located properly and provided as required	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conduits use correct materials based on location	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conduits sized properly based on function	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conduit under existing streets is minimum depth of 54 inches	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Signal phasing plan included with all NEMA phase information	
FIBER OPTIC DESIGN		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fiber optic cables provided along major roadways and at signalized intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fiber Optic conduit provided in accordance with City's Network Fiber Plan	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conduit is 1-1/2" HDPE	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conduit located in trench with streetlight conduit at 36-inch depth	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pull boxes provided at median noses of all signalized intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pull boxes provided every 1,000 feet	
STREETLIGHT DESIGN		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Connection to the power source shall has been coordinated with the electric delivery service provider	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Installation of streetlights does not utilize other agencies' facilities	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum width of 10-foot easement located along common lot lines for streetlights	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Additional easements acquired if necessary to connect to power source	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All conductors and connections are in accordance with the latest NEC and NESC guidelines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All underground streetlight services use 2-inch PVC Schedule 40 conduit in a trench with a minimum depth of 30 inches	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Underground conductors located between properties are located approximately 2-1/2 feet from the edge of the easement	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Conductors use proper cables and insulation	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streetlights in special districts conform to design standards outlined in UDC	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles use standard design type in accordance with City Specifications	
	Minor Collector and Below	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles are located 4 feet back of curb	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streetlights spaced minimum of 250 feet and maximum of 500 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streetlights on the inside of any horizontal curve with 200-foot radius or less	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streetlights at all intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streetlights at the end of all cul-de-sacs 175 feet or greater	
	Major Collector and Above	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fixtures are installed in accordance with City LED Standard for Type II roadway distributions	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles installed in medians on divided boulevards	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles in medians avoid areas for potential lane expansions	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles installed on alternating sides of undivided roadways	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pole spacing as shown in Table 4-13	Submit photometric plan if obstructions require deviations greater than 15 feet
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Type II optics provided at all 4 corners of major intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles on side of road are 4 to 8 feet back of curb	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles avoid sidewalks and accessible ramps	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles are minimum 4 feet from any street, hydrant, flume, inlet, or driveway	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles are outside the dripline of all established trees	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Poles are minimum 10 feet from any overhead utility	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Intersections are illuminated in accordance with Table 4-14	
PARKING LOT DESIGN		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All vehicle maneuvers are accomplished on site	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Parking lot layout is in accordance with Figure 4-6	

CHAPTER 5 – STORMWATER:
TECHNICAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
General Guidelines		
<input type="checkbox"/> <input type="checkbox"/>	All drainage related plans and studies sealed by an Engineer	Engineer must hold a current PE in the State of Texas
<input type="checkbox"/> <input type="checkbox"/>	Drainage studies and design plans based upon fully developed watershed or drainage area runoff conditions.	
<input type="checkbox"/> <input type="checkbox"/>	Stormwater runoff does not create “adverse impacts” and is carried to an "adequate and acceptable outfall"	<ul style="list-style-type: none"> - -Runoff is carried to an acceptable stream, channel or improved system - Runoff does not create or increase downstream flooding - If carried to a stream, runoff does not create erosive conditions - Off-site conveyance is contained with a drainage easement or ROW
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Is a stormwater storage facilities provided?	This is applicable when proposed stormwater discharge from a new land disturbance or redevelopment outfalls to a downstream system with flooding affecting public safety or insurable, habitable structures or when the downstream capacity is exceeded
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When out-falling to a channel or stream, no significant increases (0.04 ft) in water surface elevations for the 2-, 25-, and 100-year storm events	Increases may be allowed in the ROW, easements and on City property
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No increases in discharges caused by the proposed project that, in combination with existing discharges, exceeds the existing capacity of the downstream storm drainage system (downstream system includes pipes, inlets, gutters, channels, streams, etc.)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage analysis extends to a point downstream where the proposed development/project creates no adverse impacts.	For channels, minimum downstream limit shall extend to the next hydraulically significant structure (i.e. bridge or culvert) or at least 1,000 feet downstream

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage easement provided from affected property owner for offsite grading or for discharges concentrated onto an adjacent property	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage features designed to conform with Table 5-2 “Minimum Design Frequency”	Capacity of underground system may be required to exceed the 25-year storm in order to satisfy the 100-year storm criteria
Submittal Guidelines		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided all submittal elements for Plat, Site Plan, Construction Plans, Public Improvements, or Capital Improvement (CIP) Plans	*See appropriate <i>Submittal Guidelines</i> reference document
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hydrologic and Hydraulic modeling uses appropriate programs	See Table 5-1
Project Layout/Site Plan		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show structures, footprints, benchmarks, control points	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show floodplain and ECZ	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show all easements	
	Show all trees within ROW and easements.	This includes tree canopies so a good rule of thumb is to include all trees within 10 of the ROW or easement.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show northings and eastings for applicable features	
Drainage Area Map and Site Grading		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grading plan(s) is consistent with drainage area map	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grading plan(s) have labeled contours and flow arrows	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes all off-site drainage areas	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes all on-site drainage areas (pre and post construction)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show existing and proposed stormwater features (inlets, flumes, channel, pipes, etc.)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage areas divided to show runoff to each drainage feature	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grading does not divert or impound natural flow of surface waters in a manner that damages adjacent property.	Per Texas Water Code 11.086

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage Area Calculation tables note the method of analysis and show accurate: C factor or curve number, Time of concentration, soil type if applicable, intensities, existing and proposed flows for 2, 25, and 100 year storms. HMS output should be included if applicable.	-Rational method shall not be used to calculate flows for more than 20 acres -Time of concentration minimum based on DCM table -Intensity based on based on iSWM table for Tarrant County or Use TXDOT Hydraulic Design Manual data for projects requiring TXDOT approval
Hydraulics		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Show inlet, pipe, and HGL calculations for 25 and 100 year storms.	If modeling software was used, output must be provided
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Appropriate calculations used for inlet capacity	Weir flow for unsubmerged inlets, orifice flow for submerged inlets Maximum head of 1 foot for drop inlets
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	HGL starts at appropriate elevation	HGL shall start at the HGL of a connecting feature, the inside top of pipe, or at the HGL determined for a coincident confluence flow condition, whichever is highest.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	HGL accounts for all losses	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	HGL for design storm is lower than subgrade when system is beneath pavement or lower than inlet throats when outside pavement	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	HGL considers coincidental probability of hydrologic events for relative drainage area sizes	See Table 5-8 “Frequencies for Coincidental Occurrences”
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stream velocities are within maximum permissible velocities as shown in the DCM. Post-project channel velocities do not increase by more than 5% above pre-project velocities	Geotechnical/geomorphologic study required to demonstrate that higher velocities will not create additional erosion if max velocity is exceeded. If pre-project velocities exceeded maximum permissible velocities, then no additional increase is allowed.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Streets designed to convey 25-year storm <ul style="list-style-type: none"> - Local Streets flow less than curb deep - Major collectors and minor arterials allow ½ of a lane in each direction to remain dry - Major arterials allow 1 full lane in each direction to remain dry 	100-year storm is contained in Right-of-Way or easement
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Valley gutters do not cross arterial or collector streets	

Y N N/A	ITEM	ADDITIONAL INFORMATION
	Plan sheet shows stations, offsets, manholes, inlets/laterals, utility conflicts	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hydraulic Grade Line (HGL) for 25-year and 100-year storm shown on profile	
	Profile shows stations, offsets, FL elevations, manholes, inlets/laterals, and utility conflicts.	
	Design information on profiles shall include slopes, flow rates, velocities, etc.	
	Show headwater and tailwater elevations	
	Show pavement and subgrade on profiles and ensure that pipes are not in the subgrade.	
	Call out pipe type and size as well as any casing and accurately depict size to help identify conflicts.	
	Provide 2' of clearance with all conflicting utilities.	Can be closer if casing is designed and approved by the City.
	Plan and profile shown on same page when possible, and include the same stationing and conflicts. Use match line stations when more than one sheet is required.	
Inlet Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No grate or combination inlets on public systems	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Curb inlets are minimum 10 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Curb inlets placed upstream of intersections	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drop inlets are accessible for maintenance by City	On public systems
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swales or flumes directed toward drop inlets are contained in a drainage easement	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	low point inlets provide structural overflow for 100-year storm	If no overflow is provided, must be designed for 100-storm with 50% clogging factor
Pipe Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Ends of all storm drain systems have a headwall or sloped end treatment	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Energy dissipation and hard armor provided at all outfalls into streams	Refer to NCTCOG iSWM Technical Manual for Hydraulics

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 18-inch Class III RCP for public systems	Higher class pipe may be required for certain depths. Refer to manufacturer specifications.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All pipe bends and fitting are prefabricated	Use collar per City detail for field connections (as allowable)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Access point provided at minimum 500-foot spacing	
	Storm drains have minimum 0.5% slope	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Storm drains have Maximum velocity of 15 fps	Minimum 2.5 fps full-flow velocity in design storm, maximum 15 fps velocity
Open Channel and Transition Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Tailwater/headwater analysis completed	Required for any proposed open channels, transitions into and out of channels, energy dissipation structures, obstruction, or dams less than 6 feet.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Computer analysis completed	Required for channels and streams with effective FEMA and or RFM model. See Table 5-1. Model should assume fully developed conditions.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	New channels do not have supercritical flow.	Mixed flow analysis should be performed in HEC-RAS (as required) to check for supercritical flow.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flow depths are consistently around 1.1x critical depth	No more than 2 consecutive cross sections may default to critical depth.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing or potential locations of hydraulic jumps have appropriate concrete lining in channel	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Channel easement limits contain 100 year channel plus 10' on both sides of the channel for maintenance.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Outfalls from closed systems or other areas of excessive erosion or head cutting use grade control, drop structures, hard armoring, or permanent transitional materials	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Modified vegetated channels have side slopes 4:1 or flatter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Modified channels have bottom width at least 6 feet	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Modified channels achieve minimum slope	1% for vegetated channels, 0.5% for hard armor channels or pilot channels

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design of the channel lining considers superelevation of water surface around curves and other changes in direction	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Earthen channel slopes vegetated with Buffalo Grass or approved alternative.	Soil Retention Blankets on all earthen or grass-lined side slopes and bottoms for slope protection until acceptable vegetation densities are achieved
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Designed with multiple stages for common recurring flows and the design discharge	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Modified vegetated channels have maximum velocity of 6 fps	Higher velocities and/or channel armoring require a sealed geotechnical study for design
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Modified Channels have appropriate access ramp for maintenance	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Channel Transitions provide energy dissipation between improved and natural sections and at outfalls	Refer to the NCTCOG iSWM Technical Manual for Hydraulics Section 4.0 Energy Dissipation for design of channel transitions and energy dissipation.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stone riprap sizing based on Isbash Method	Minimum sizing 18-inch Minimum thickness 1.5x D50
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stone riprap gradation based on <i>FWHA HEC-23 Section 5.2.8: Riprap Size, Shape, and Gradation</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grouted stone riprap has toe extending beneath anticipated scour depth	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grouted stone riprap has proper underdrain and weep holes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All riprap has properly designed geotextile material	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Riprap used for bank protection has 2H:1V maximum slope	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Alternative materials include supporting documentation demonstrating product is appropriate for the proposed use	
EROSION CLEAR ZONE		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Shown, labeled and described by metes and bounds on the plat or site plan when ECZ lies outside drainage easement	Variances to ECZ require geomorphological analysis or an engineered plan to protect banks in accordance with NRCS Stream Stabilization Guidance

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Clear of any building, pavement surface, fence, wall, swimming pool, utility or other structure or improvement	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	ECZ delineated on each side of stream bank, defined by incised bankfull depth	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Subsurface offset of 2 feet from ECZ provided for subsurface resources and intersection.	
Roadside Ditch Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Set back from roadway in accordance with City's standard detail	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drainage easement is dedicated minimum 5 feet beyond top of ditch when ditch extends beyond ROW	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Side Slopes are 4:1	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum slope is achieved	1% for vegetated channels, 0.5% for hard armor channels or pilot channels
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maximum velocity is 6 fps	Higher velocities and/or ditch armoring requires a sealed geotechnical study for design
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maximum depth is 5 feet below street crown	
Flume and Swale Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flumes and swales are not used in lieu of an underground system	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Overflow flumes and swales are sized to carry remainder of design storm	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flumes and swales are located in a drainage easement	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flumes are minimum 4 feet wide	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flumes have 0.5% minimum slope	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swales have 2.0% minimum slope	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fences do not cross flumes or swales	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Erosion Clear Zone is provided along natural streams	
Culvert Design (Street/Driveway Crossing)		

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Culverts provided at all driveways, intersections, or other locations necessary to carry surface/ditch flow under roads and driveways	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sloped end treatments and energy dissipation provided	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Invert provided above the pipe for overflow	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When 3 or more barrels, one is placed at lower elevation	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Culverts have appropriate slope	0.5% minimum, 10% maximum
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Culvert has allowable headwater and tailwater depths	
Bridge Design		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bridges passes 25-year storm for fully developed watershed conditions, or design storm in accordance with TxDOT requirements, whichever is more stringent.	Bridges on designated emergency access routes pass 100-year storm for fully developed watershed conditions
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bridge design used HEC-RAS to determine accurate tailwater elevations, velocities, head losses, headwater elevations, profiles and floodplains affected by the proposed structure	Analysis includes 2-, 25-, and 100-year storm events
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Contraction (Kc) and expansion (Ke) coefficients are in accordance with current FEMA guidelines.	
Stormwater Storage Facilities		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stormwater storage facility is provided	<ul style="list-style-type: none"> - Required when: land disturbance has outfall to a downstream system with flooding affecting public safety or insurable, habitable structures - When downstream capacity is exceeded
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design is based on an SCS unit hydrograph	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Relevant calculations provided on plan sheet	Included on construction plans and supplemental documents, as required
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Release rate does not exceed downstream capacity	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Detains the difference between the pre- and post-project flows in cases of structural flooding	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Storage and Release rates are evaluated for 2-, 25-, and 100-year storm events	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dry storage facilities must be designed to release their full capacity within 48 hours	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Release velocities are designed to minimize erosion downstream of the facility	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Minimum 1-foot of freeboard is provided for storage facility	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Above ground facilities are required to meet all state and federal requirements	Facilities that store more than a total depth of 4 feet are subject to additional state and federal criteria for small dams
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Structural plans and a geotechnical analysis provided for structural embankments or embankments over 4 feet tall	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Operation and maintenance schedule with costs is provided	Maintenance Agreements filed with Tarrant County
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provides a 10-foot wide access path for maintenance access.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Grassed side slopes are 4:1 or flatter	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pilot channel provided if bottom slope is less than 1%	Concrete flume is minimum 0.5%, minimum 4 feet wide.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Storage facility provides emergency spillway	
Stormwater Quality		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stormwater Management Site Plan (SWMSP) created for minimum land disturbance of 5,000 SF	<i>*See SWMSP Submittal Requirements and Technical Guidelines</i>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Impervious areas are minimized	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	BMPs are contained in public easements	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Operation and maintenance schedule with costs is provided for each different type of post construction BMP used	Maintenance Agreements filed with Tarrant County
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stormwater Pollution Prevention Plan (SWPPP) provided for all land disturbances	<i>*See SWPPP Submittal Requirements and Technical Guidelines</i>

CHAPTER 5 – STORMWATER:
SUPPLEMENTAL DOCUMENTS - SUBMITTAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
FLOODPLAIN DEVELOPMENT PERMIT (FDP)		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Required for any land disturbance activity within and NFIP regulatory floodplain	Defined as: “Any use of the land by any Person in residential, governmental, industrial, educational, institutional, or commercial development, highway and road construction and maintenance that results in a change in the natural cover or topography and that may cause or contribute to sedimentation, additional pollutant runoff, increased peak discharges, or stormwater runoff volumes.”
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	FDP application is completed	https://arlingtontx.gov/UserFiles/Servers/Server_14481062/File/City%20Hall/Depts/PDS/Land%20Development/Commercial%20Site/Land%20Development%20Forms/FloodplainDevelopmentPermit.pdf
	FDP is accompanied by project plans showing all changes to the floodplain	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	FDP is accompanied by other documentation as required	Includes, but not limited to: flood study, (conditional) letter of map change, Trinity River CDC, USACE permits
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hydraulically equivalent compensatory storage is provided opposite or adjacent to fill areas within floodplain	<ul style="list-style-type: none"> - Storage volume lost below existing 10-year elevation replaced below the proposed 10-year flood elevation - Storage volume lost above existing 10-year elevation replaced below the proposed 10-year flood elevation
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	New insurable structures are at or above MFF or FPE	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	New insurable structures are minimum of 2 feet above 100-year fully urbanized BFE	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All home services are minimum of 2 feet above 100-year fully urbanized BFE	Includes water heater, furnace, air conditioner, etc.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Substantial Improvements provisions are met if improvements or alterations to a structure exceed 25% of existing market value	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dry floodproofed non-residential building is designed by Engineer and:	

Y N N/A	ITEM	ADDITIONAL INFORMATION
	<ul style="list-style-type: none"> - Is floodproofed below FPE - Accounts for flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy and impacts from debris or ice - Is operable without human intervention and without an outside source of electricity 	
	FDP application is approved by City's Floodplain Administrator or Designee	
FEMA SUBMITTALS/LETTERS OF MAP CHANGE		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Submit request for FEMA Letter of Map Change to City with supporting flood study	To remove all or portions of a property from SFHA, to improve a stream and construct a channel (concrete, earthen, or other approved material)
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Forward City-accepted request and report to FEMA for approval	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Lowest point on lot and lowest adjacent grade of structure are at or above effective FEMA 100-year flood elevation	To remove an entire lot and structure from SFHA
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Lowest adjacent grade of structure is at or above effective FEMA 100-year flood elevation	To only remove a structure from SFHA
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Lowest floor of new or substantially improved structure is 2 feet above fully developed watershed 100-year flood elevation.	City must determine that land and any existing or proposed structures to be removed from SFHA are "reasonably safe from flooding"
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Refer to FEMA website for the most current descriptions of each type of map change	http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/letter-map-change
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Follows FEMA <i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> prior to preparing a letter of map change.	http://www.fema.gov/media-library/assets/documents/13948
U.S. ARMY CORPS OF ENGINEERS (USACE) REGULATORY PERMITS		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Follows all requirements as directed by USACE. A general summary of permitting is outlined below:	https://www.swf.usace.army.mil/Missions/Regulatory/
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Section 10 Permit required for structures on Navigable Waters of the United States	Structures include, but are not limited to, piers, wharfs, breakwaters, bulkheads, jetties, weirs, transmission lines

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Section 10 Permit required for dredging or disposal of dredged material, or excavation, filling, or other modifications to Navigable Waters of the United States	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Received determination from USACE that waters of project site are jurisdictional and subject to requirements of the Section 404 permitting program	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Jurisdictional waters follow sequence as described in Section 404(b)(1) guidelines	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Nationwide Permits: <ul style="list-style-type: none"> - Must receive approval before commencing with work in waters of the U.S. - Must comply with the terms and conditions of the nationwide permit. - May require preconstruction notification to Fort Worth District stating intent, type, and amount of impact and fill in waters, and to provide a site map. 	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Regional General Permits: <ul style="list-style-type: none"> - Contain provisions intended to protect the environment, including natural and cultural resources. Work not complying with provisions may require individual permit - Compliance with conditions contained in RGP does not guarantee authorization of the work by an RGP 	Fort Worth District has 3 Regional Permits: <ul style="list-style-type: none"> - Boat Ramps and Minor Facilities - Exploration and Production Wells - Modification and/or Alteration of Corps of Engineers Projects and Associated Regulated Activities
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Individual Permits: <ul style="list-style-type: none"> - Required for activities resulting in more than minimal impacts to aquatic environment and require significantly more detailed engineering and environmental information 	
TRINITY RIVER CORRIDOR DEVELOPMENT CERTIFICATE (CDC)		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hydrologic and hydraulic information, forms, maps, and models submitted to City for review	Must be approved by City prior to sending to USACE, NCTCOG, or other CDC communities and agencies.

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Follows all requirements as directed by NCTCOG. A general summary of required items is outlined below:	https://www.nctcog.org/envir/watershed-management/corridor-development-certificate-program
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Submitted NCTCOG Review Letter	Template provided on NCTCOG website
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Completed CDC Application Form Part 1	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Completed CDC Application Form Part 1	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided location map	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided hydraulic work map	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided site map	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided project boundary in digital format	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided pre-project conditions and post-project conditions models in digital format	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided hard copy printouts and plots of cross-sections and water surface elevation profiles for 100-year flood and SPF for pre-project and post-project conditions	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provided two sets of hydraulic models with discharges as directed by respective agencies <ul style="list-style-type: none"> - USACE discharges (includes 50-year projection of increased urbanization, and “permitted but not constructed” projects) - FEMA effective discharges 	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Paid cost recovery fees	To NCTCOG
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Submitted USACE Review letter	Template provided on NCTCOG website
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Completed all requirements as dictated by USACE	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Paid review fees to USACE	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All fill in the floodplain of the CDC area meets City requirements for hydraulically equivalent compensatory storage	Must meet requirements above and below the 10-year flood elevation
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Obtained Floodplain Development Permit.	CDC and FEMA CLOMR must be obtained prior to issuance

STORMWATER MANAGEMENT SITE PLAN (SWMSP):
SUBMITTAL GUIDELINES AND
TECHNICAL GUIDELINES

Y N N/A	ITEM	ADDITIONAL INFORMATION
GENERAL SUBMITTAL GUIDELINES		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWMSP is prepared for minimum land disturbances of 5,000 SF	<ul style="list-style-type: none"> - Site Plan can be considered SWMSP for land disturbances between 5,000 SF and 12,000 SF - Grading or drainage plans may be used as SWMSP for CIP projects - Must be accepted by City prior to any site activity
	SWMSP is sealed by an Engineer	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design evaluates site layout to minimize impervious area and impacts to existing natural resources	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWMSP coordinates with all portions of plans, especially grading, drainage, and landscape plans	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Source of design criteria is referenced in SWMSP	
BMP Design Criteria		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Provides minimum number of permanent BMPs	See Table 5.6 <i>Minimum Number of Permanent BMPs Required</i> . Subdivisions with paved alleys in addition to streets provide one additional BMP above minimum per acre
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	BMPs treat 100% of the impervious area first flush	First flush is typically the 1 or 2 year storm
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	BMPs used are appropriate for the site, runoff volume, and specific pollutants that site will produce.	For roadways, typical pollutants are TSS, oil and grease, floatables. Subdivisions also include pollutants like nutrients, pesticides and bacteria. Site should be evaluated to determine target pollutants in compliance with MS4 regulations. The majority of the creeks in Arlington are impaired for bacteria.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	City of Arlington requirements for BMPs and NCTCOG iSWM Site Development Controls or another acceptable design criteria is followed	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Easements are dedicated in accordance with Section 2.2 of Design Criteria Manual	

Y N N/A	ITEM	ADDITIONAL INFORMATION
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Plat or separate instrument dedicating easement includes statement of owner's responsibility for maintenance	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maintenance agreement contains detailed information of BMP operation, maintenance responsibilities, and enforcement actions to be taken if BMP's are not maintained	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Maintenance agreement filed with Tarrant County	Upon City approval of SWMSP and easements
Stormwater Quality Measures		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Predevelopment grades steeper than 5H:1V provide minimal modification to topography and drainage	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Natural creeks and wetlands are preserved to maximum extent	
	Drainage systems designed to minimize changes in Time of Concentration	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Submit letter from design engineer stating that post-construction BMPs were constructed as designed	May be incorporated with the as-built letter for private improvements
Stormwater BMP Construction Sequencing		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Design specifies proper construction sequencing to minimize potential disturbance to stormwater BMP structures.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Construction sequencing considers risk of erosion, vegetation establishment, pavement sequencing clogging from fine soil particles, etc.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sedimentation ponds to be used as permanent BMPs or detention ponds have provisions for dredging after final stabilization of the site occurs.	

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):
SUBMITTAL GUIDELINES
FOR CONSTRUCTION PROJECTS

Y N N/A	ITEM	ADDITIONAL NOTES
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Determine if project is part of a larger “Common Plan of Development”	Can include one or many operators
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Clearly indicate area of disturbance on submitted SWPPP document	Include total area if part of a common plan of development
CONSTRUCTION PROJECTS: LESS THAN 12,000 SQUARE FEET DISTURBED		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWPPP Contact Information Fact Sheet provided to City	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Erosion and sediment controls installed to prevent sediment and pollutants from leaving site	
CONSTRUCTION PROJECTS: 12,000 SQUARE FEET TO 0.99 ACRES DISTURBED		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Complies with all items listed above for “Construction Projects: Less than 12,000 SF”	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes site plan showing entire site, limits of soil disturbance, location of construction entrance, and other construction BMPs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWPPP Standard Drawing Notes are included	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Additional site specific notes included and protection measures are performed as necessary	
CONSTRUCTION PROJECTS: 1 ACRE TO 4.99 ACRES DISTURBED		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Complies with all items listed above for “Construction Projects: 12,000 SF to 0.99 acres disturbed”	
General SWPPP Document		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Original signatures on all documents and seal of a Professional Engineer licensed in Texas, or other approved professional on SWPPP	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes signed primary operator TCEQ Site Notice	Contractor is primary operator for CIP projects
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Includes signed secondary operator TCEQ Site Notice	City is secondary operator for CIP Projects
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Delegation of Authority signed by owner and primary operator	City is owner on CIP projects

Y N N/A	ITEM	ADDITIONAL NOTES
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Delegation of Authority from primary operator to site inspector	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List of operator responsibilities and contact information (person, company, address and phone number)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWPPP must be bound and tabbed with pages numbered and a table of contents	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Copy of current TPDES General Permit is included	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Final SWPPP with revisions, inspection logs, and other documentation must be kept for 3 years following the end of construction.	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Submit revised SWPPP/notice of completion of operation to City upon conclusion of project	
Site/Project Description		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of site by street address and legal description	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Map showing the general location of the site	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List of potential pollutants and sources	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Number of acres of the entire property	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Number of acres of disturbed area where construction activities will occur, including off-site material storage, staging areas, stockpiles of dirt and borrow areas	For subdivisions, if the site is not to be mass-graded, the following formula should be used to determine the amount of disturbance (note must be added to the plans stating the assumed disturbance in SF for each lot): <i>Amount of Disturbance = 2[Max Restricted Building Size][Number of Lots] + ROW areas</i> - ROW areas include clearing for roads, utilities, easements etc.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing data describing the soil type of the site	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Description of the construction activity (include pre- and post-construction conditions)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Description of project phases and/or major soil disturbing events	Include placeholders for actual dates of each phase/event and for responsible operator
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Name and segment of receiving water(s) and if they are listed as impaired by TCEQ	Refer to the latest TCEQ Index of Water Quality Impairments

Y N N/A	ITEM	ADDITIONAL NOTES
Site Map and/or Plans		CIP project plans should include erosion control plan with these items
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing and proposed drainage area map	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing and proposed 1' or 2' site contours and flow arrows	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Existing and proposed on site or near-site inlets and outfalls	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Locations of proposed stormwater controls or BMPs (for each phase of construction)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Limits of soil disturbance	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Locations of material storage, staging areas, support activities, and borrow areas	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of on-site or near site wetland, surface waters, and mapped floodplains	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of concentrated stormwater discharges to water bodies or stormwater systems (include names of any receiving water bodies)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of all buffers, areas to be preserved, and trees to be protected	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of temporary and permanent stabilization practices	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Location of all construction site entrances and exits	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Details for all stormwater controls	Use City standard detail when available
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Notes for each stormwater control including installation and maintenance guidance	Plans must indicate that sediment must be removed from controls when design capacity is reduced by 50% or when deemed necessary by the City
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	City SWPPP Standard Erosion and Sediment Control Notes are included	See SWPPP Template for notes
Best Management Practices		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Listing of stormwater controls associated with each phase or event of construction	

Y N N/A	ITEM	ADDITIONAL NOTES
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Include velocity dissipation devices at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to the watercourse	No significant changes in the hydrological or hydraulic regime of the receiving water
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Include stormwater controls to minimize erosion and offsite sediment discharge	Include measures against vehicle tracking, dust, and sediment-laden runoff
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Updateable list of materials to be stored on-site	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Covered trash receptacle for on-site litter and construction debris	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Temporary detention structure if 10 or more disturbed acres drain to a common point or a discussion of why it is not feasible (if applicable)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pit for temporary on-site disposal of concrete waste from mixing drums and chutes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Liquid tight bermed area (liner required) or other spill protection measure per the Fire Code for any temporary fuel tanks placed on site during construction	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List of allowable non-storm water discharges and indicate appropriate control measures for non-storm water components of the discharge	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Note that ensures and demonstrates compliance with applicable federal, state and/or local waste disposal, sanitary sewer or septic system regulations	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List of measures to be installed during construction that will remain after construction as post construction BMPs	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stormwater controls must be adequate and in compliance with the Design Criteria Manual	
Site Inspection		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SWPPP must indicate inspection schedule: <ul style="list-style-type: none"> - Once every 2 weeks and within 24 hours after a storm event of 0.5 inches or more; OR - once every 7 days without additional inspections after rain events. 	

Y N N/A	ITEM	ADDITIONAL NOTES
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Example inspection checklist including (at minimum):</p> <ul style="list-style-type: none"> - A place for the inspector's name and qualifications - A place for the date(s) of the inspection(s) to be recorded - Disturbed areas of the construction site that have not been stabilized - Areas used for storage of materials that are exposed to precipitation - Structural control measures - Locations where vehicles enter or exit the site - Identification of measures that need to be maintained, modified, or added to correct problems (and specify update of plan within 7 calendar days) - The inspection of adjacent areas daily, and the pick-up of construction waste materials, debris, and fugitive sediment that have blown or washed off-site - A place to be signed in accordance with 30 TAC § 305.128 	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Placeholder for dates when construction activities temporarily or permanently ceases and will not resume on that portion of the site within 21 days in order to ensure that stabilization measures are initiated by the 14th day without construction activity</p>	
CONSTRUCTION PROJECTS: 5 OR MORE ACRES DISTURBED		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Complies with all items listed above for "Construction Projects: 1 acre to 4.99 acres disturbed"</p>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Notice of Intent for Primary Operator</p>	<p>Provide documentation that this was filed with TCEQ</p>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Endangered Species Certification signed by Owner and Primary Operator</p>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Historical Places Certification (if applicable) signed by Owner and Primary Operator</p>	

Y N N/A	ITEM	ADDITIONAL NOTES
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Notice of Termination shall be added to the SWPPP at the end of the project	Provide documentation that this was filed with TCEQ